

What is claimed:

1. A light device comprising:  
a light source;  
5 a concave reflector;  
a lens projection system;  
said light source, reflector and lens system being substantially aligned  
relative to an optical axis; and  
a collecting lens between said light source and said reflector.
- 10 2. A light source as set forth in Claim 1, wherein said light source is one  
of an electric lamp and an arc candle.
3. A light source as set forth in Claim 1, wherein said reflector is formed  
15 as a segment of a sphere.
4. A light source as set forth in Claim 1, wherein said collecting lens is a  
biconvex lens.
- 20 5. A light source as set forth in Claim 1, wherein said reflector has a focal  
length,  $l$ , and said lens projection system and said reflector are separated by  
a distance,  $d$ , where  $d \geq 1.5l$ .
6. A light source as set forth in Claim 1, wherein said light source is  
25 located substantially at a focal point of said reflector.
7. A light source as set forth in Claim 1, wherein said collecting lens has a  
focal length of  $l_1$  and said reflector has a focal length  $l_2$ , where  
 $1.25l_1 \leq l_2 \leq 2.0l_1$ .

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8. A light source as set forth in Claim 1, wherein said collecting lens is disposed a distance  $d_1$  from said source relative to said optical axis and said reflector is disposed a distance  $d_2$  from said source relative to said optical axis, where  $d_1 \geq \frac{1}{2}d_2$ .

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9. A light source as set forth in Claim 1, wherein said reflector has a focal length,  $f$ , and said collecting lens is disposed at a distance,  $d$ , from said reflector relative to said optical axis, where  $0.25f \leq d \leq 0.5f$ .

10 10. A light source as set forth in Claim 1, where a diameter of said collecting lens is at least as great as a diameter of said reflector.

11. A light source as set forth in Claim 1, wherein said collecting lens is movable along said optical axis relative to said light source and said reflector.

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12. A light source as set forth in Claim 1, further comprising a diaphragm disposed between said source and said lens projection system.

13. A light source as set forth in Claim 12, wherein said diaphragm has an aperture dimensioned to minimize transmission of unreflected light along said optical axis towards said lens projection system, where said unreflected light is light transmitted directly from said source free from reflection by said reflector.

20 14. A light source as set forth in Claim 1, further comprising n auxiliary reflector system disposed between said source and said lens projection system.

25 15. A light source as set forth in Claim 14, wherein said auxiliary lens projection system comprises a second collecting lens and a second reflector, wherein said reflector, collecting lens, second reflector and second lens are symmetrically disposed on said optical axis relative to said source.

16. A light source as set forth in Claim 15, wherein said dimensions of said second collecting lens and said second reflector substantially match those of said collecting lens and reflector, respectively.
- 5 17. A light source as set forth in Claim 14, wherein said source has a diameter,  $d_1$ , and said auxiliary reflector system comprises a reflector surface having an aperture therein, said aperture having a diameter,  $d_2$ , where  $\frac{1}{2}d_1 \leq d_2 \leq 2d_1$ .
- 10 18. A light source as set forth in Claim 1, wherein said reflector is disposed on a first side of said source relative to said optical axis and said lens system is located on a second side of said source, opposite said first side, relative to said optical axis.
- 15 19. A light device comprising a light source, a main concave reflector, and a lens projection system, the main concave reflector and the lens projection system being optically aligned and the light source being located between the reflector and the lens projection system and also on the same optical axis as they are, wherein a main collecting pre-reflector lens is mounted between the
- 20 light source and the main reflector, the concave surface of the main reflector is shaped as a segment of sphere, the light source is located in the focal point of that main reflector, said main collecting pre-reflector lens has a focal length exceeding that of the main reflector by a factor of about 1.25-2.0, its diameter is equal to or exceeds the main reflector diameter, and this lens is located at a
- 25 distance from the main reflector which does not exceed half of the distance from the main reflector to the light source.
20. A light device as set forth in Claim 19, wherein the main collecting pre-reflector lens is so designed that it can be displaced along its optical axis.

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21. A light device as set forth in Claim 19, wherein a diaphragm is mounted in said light device between the lens projection system and the light source, and an optical axis of said device is aligned with the optical axes of this lens projection system and the main reflector.

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22. A light device as set forth in Claim 19, further comprising an auxiliary concave reflector and a second collecting pre-reflector lens mounted in said device, wherein dimensions and shapes of said auxiliary reflector are similar to those of the main concave reflector, a through hole is cut in a wall of said auxiliary reflector, no less in diameter than half of the point light source diameter, but no bigger than two diameters of such point light source, and an axis of said through hole coincides with the supplementary reflector's optical axis; wherein said auxiliary concave reflector and the second collecting pre-reflector lens are located opposite to the light source relative to the main concave reflector and the main collecting pre-reflector lens, symmetrically with them, and so that the optical axes of the auxiliary concave reflector and the second collecting pre-reflector lens coincide with the optical axis of the main concave reflector.

20 23. A light device as set forth in Claim 22, wherein the auxiliary concave reflector is located at such a distance from the main concave reflector that the focal points of both reflectors coincide.